

**In the Claims:**

Please amend the claims as follows:

1. (Currently Amended) Method for performing event detection and object tracking in an image stream, wherein an event is defined as the occurrence of a type of activity which requires some type of action in response thereto, said method comprising:
  - a) installing in field, an image acquisition device for acquiring an image stream and comprising a local programmable processor for converting the acquired image stream, consisting of one or more images, to a digital format, and a local encoder, for generating, from said image stream, non-image feature data, said non-image feature data including parameters related to attributes of areas in said image stream, and for transmitting a non-image feature stream containing said features;
  - b) connecting said image acquisition device to a data network through a corresponding data communication channel;
  - c) connecting an image processing server to said data network;
  - ~~d g~~) detecting said event from analyzing said non-image feature stream by said image processing server and;
  - ~~e h~~) transmitting, by said image processing server, indications regarding said event in said image streams to an operator.
2. (Previously Amended) Method according to claim 1, wherein the local encoder is a composite encoder, being the local encoder that further comprises circuitry for compressing the image stream, and further comprising:

a) operating said composite encoder in a first mode, during which it generates and transmits said non-image feature stream to said image processing server, and

b) operating said composite encoder in a second mode responsive to detecting said events, during which it transmits to said image processing server, in addition to said non-image feature stream, at least a portion of said image stream in a desired compression level, according to commands sent from said image processing server.

3. (Cancelled)

4. (Original) Method according to claim 1, further comprising decoding one or more compressed image streams containing events by said server, and transmitting the decoded image streams to the display of an operator, for viewing.

5. (Previously Presented) Method according to claim 2, further comprising recording one or more compressed image streams obtained while said local encoder operates in said second mode.

6. (Original) Method according to claim 2, further comprising dynamically allocating additional image processing resources, in the server, to data communication channels that receive image streams.

7. (Cancelled)

8. (Previously Amended) Method according to claim 6, further comprising generating and displaying a graphical polygon that encompasses an

object of interest, being within at least one of a frame of an image and an area of interest in said image.

9. (Previously Amended) Method according to claim 8, further comprising generating and displaying a graphical trace indicating the history of movement of an object of interest, being within at least one of the frame of an image and an area of interest in said image.

10. (Previously Amended) Method according to claim 1, wherein the image stream is selected from a group of images that comprises video streams, still images, computer generated images, pre-recorded digital video data and analog video data.

11. (Original) Method according to claim 1, wherein the image streams are video streams, compressed using MPEG format.

12. (Cancelled)

13. (Previously Amended) Method according to claim 1, wherein the non-image feature data includes at least one of:

- a motion feature;
- foreground feature
- a color feature;
- edge data ; and
- frequency related information.

14. (Previously Amended) Method according to claim 1, further comprising performing, by the server, at least one of:

- License Plate Recognition (LPR);

Facial Recognition (FR);  
detection of traffic rules violations;  
behavior recognition;  
fire detection;  
traffic flow detection; and  
smoke detection,  
using the non-image feature stream received from the image acquisition device, through the data communication channel.

15. (Previously Amended) System for performing event detection and object tracking in image streams, wherein an event is defined as the occurrence of a type of activity which requires some type of action in response thereto, said system comprising:

- a) an image acquisition device, installed in field, comprising:
  - a. 1) a local programmable processor for converting the acquired image stream to a digital format;
  - a. 2) a local encoder, for generating, from said image stream, non-image feature data, said non-image feature data including parameters related to attributes of areas in said image stream, and for transmitting a feature stream containing said non-image feature data;
- b) a data network, to which the image acquisition device is connected through a corresponding data communication channel;

- c) a remote image processing server connected to said data network, said remote image processing server receiving said feature stream transmitted by said local encoder; and
- d) said remote image processing server detecting said event from analyzing said feature stream, and transmitting indications regarding said event to an operator.

16. (Previously Amended) System according to claim 15, wherein said local encoder is a composite encoder and further comprises circuitry for compressing said image stream, said composite encoder having a first operating mode, during which it generates and transmits said feature stream to said remote image processing server, and having a second operating mode, during which said composite encoder transmits to said remote image processing server, in addition to said feature stream, at least a portion of said image stream in a desired compression level, according to commands sent from said remote image processing server.

17. (Previously Amended) System according to claim 16, further comprising the remote image processing server decoding said portion of said image stream and determining said portion of said image stream contains an event; and

an operator display, for receiving said portion of said image stream, containing the event from the remote image processing server.

18. (Previously Amended) System according to claim 16, further comprising a network video recorder for recording one or more image streams, obtained while said composite encoder operates in said second mode.

19. (Previously Amended) System according to claim 16, in which the remote image processing server is capable of dynamically allocating image processing resources to said data communication channel when said data communication channel receives said portion of said image stream.

20. (Previously Amended) System according to claim 16, in which said portion of said image stream obtained while operating in the second mode, comprises only a portion of the image that corresponds to a desired area of interest.

21. (Previously Amended) System according to claim 16, in which the remote image processing server further comprises processing means for generating and displaying a graphical polygon that encompasses an object of interest, being within at least one of a frame of an image and an area of interest in said image when said composite encoder is in said second operating mode.

22. (Previously Amended) System according to claim 21, in which the remote image processing server further comprises processing means for generating and displaying a graphical trace indicating the history of movement of an object of interest, being within at least one of the frame of said image and the area of interest of said image.

23. (Original) System according to claim 15, in which the image stream is selected from the group of images that comprises video streams, still images, computer generated images, and pre-recorded digital or analog video data.

24. (Previously Amended) System according to claim 15, in which the image stream is a video stream compressed using MPEG format.

25. (Cancelled)

26. (Previously Amended) System according to claim 15, in which the feature stream includes at least one of:

- a motion feature;
- a color feature;
- edge data; and
- frequency related information.

27. (Previously Amended) System according to claim 15, in which the remote image processing server further comprises processing means for performing at least one of:

- License Plate Recognition (LPR);
- Facial Recognition (FR);
- detection of traffic rules violations;
- behavior recognition;
- fire detection;
- traffic flow detection; and
- smoke detection;

using the feature stream, received from the local encoder of the image acquisition device, through the data communication channel.

28. (Canceled)

29. (Canceled)

30. (Previously Amended) Method according to claim 1 wherein said non-image feature data further comprises a motion feature and said motion feature is

encoded in said feature stream only when said motion feature exceeds a predetermined threshold.

31. (Previously Amended) System according to claim 15 wherein said non-image feature data further comprises a motion feature and said motion feature is encoded in said feature stream only when said motion feature exceeds a predetermined threshold.

32. (Previously Amended) A distributed image processing method for effectively performing event detection in a large number of concurrent image sequences, wherein an event is defined as the occurrence of a type of activity which requires some type of action in response thereto, said method comprising:

- a) performing low level feature extraction in the vicinity of an image acquisition device, said low level feature extraction comprising:
  - i) receiving an image stream from each of a plurality of image acquisition devices installed in field;
  - ii) extracting non-image features from said image stream from each of said plurality of image acquisition devices, said features being parameters related to attributes of areas in said image stream;
  - iii) prior to detecting said event, generating a reduced bandwidth non-image feature stream for each said image stream, said reduced bandwidth non-image feature stream based upon said features;
- b) prior to detecting said event, transmitting said reduced bandwidth non-image feature stream for each of said plurality of image acquisition devices to a remote image processing server; and



- c) detecting events by performing high level image processing at said remote image processing server, said high level image processing comprising:
  - i) receiving said reduced bandwidth non-image feature stream transmitted from each of said plurality of image acquisition devices,
  - ii) analyzing each said reduced bandwidth non-image feature stream at said remote image processing server, and
  - iii) detecting events in each said image stream based upon said analyzing of each said reduced bandwidth non-image feature stream by said remote image processing server.

33. (Previously Amended) The method of claim 32 further comprising transmitting to said remote image processing server at least a portion of an image stream from any of said plurality of image acquisition devices associated with a reduced bandwidth non-image feature stream in which said remote image processing server detects an event.

34. (Previously Presented) The method of claim 33 further comprising displaying said image stream in which an event is indicated on a display screen of an operator at said remote image processing server.

35. (Previously Amended) The method of claim 32 wherein said features are encoded in said reduced bandwidth non-image feature stream only when at least one of a number and type of said features exceed a predetermined threshold, wherein said threshold is applied to said image acquisition device to control when said encoder generates and transmits said feature stream, and said number and type of features exceeding said threshold are indicative of activity to be further analyzed by said remote image processing server in order to detect said event.

36. (Previously Amended) The method of claim 35 wherein said transmitting said reduced bandwidth non-image feature stream to said remote image

processing server occurs only when said number and type of features exceed said predetermined threshold.

37. (Previously Amended) The method of claim 35 wherein said features further comprise motion features, and said motion features are encoded in said reduced bandwidth non-image feature stream only when said motion features exceed said predetermined threshold.

38. (Previously Presented) The method of claim 35 wherein said predetermined threshold is set by said remote server.

39. (Previously Presented) The method of claim 32 further comprises recording said image stream when said event is detected therein.

40. (Previously Amended) The method of claim 35 further comprising transmitting to said remote image processing server at least a portion of an image stream from any of said plurality of image acquisition devices associated with a reduced bandwidth non-image feature stream in which said remote image processing server detects an event.

41. (Previously Amended) The method of claim 40 further comprising generating and displaying a graphical polygon that encompasses an object of interest within at least one of a frame of said at least a portion of an image and an area of interest in said at least a portion of an image.

42. (Previously Presented) The method of claim 41 further comprising generating and displaying a graphical trace indicating the history of movement of said object of interest.

43. (Previously Amended) The method of claim 32 wherein said image stream is selected from a group of images comprising video streams, still images, computer generated images, pre-recorded digital video data and pre-recorded analog video data.

44. (Previously Amended) The method of claim 32 wherein said non-image features comprise at least one of:

- a motion feature;
- a color feature;
- edge data; and
- frequency related information.

45. (Previously Amended) The method of claim 32 wherein said second processing step further comprises performing, by said remote image processing server, at least one of:

- License Plate Recognition (LPR);
- Facial Recognition (FR);
- detection of traffic rules violations;
- behavior recognition;
- fire detection;
- traffic flow detection; and
- smoke detection;

using said reduced bandwidth non-image feature stream received from at least one of said plurality of image acquisition devices.

46. (Currently Amended) A distributed image processing system for effectively performing event detection in a large number of concurrent image sequences, said distributed image processing system having an in field component and a remote component, wherein an event is defined as the occurrence of a type of

activity which requires some type of action in response thereto, said distributed image processing system comprising:

a) a low level feature extraction component located in field, said low level feature extraction component comprising:

a plurality of image acquisition devices installed in field, each producing an image stream;

a processor and an encoder associated with each of said plurality of image acquisition devices;

said processor converting said image stream to a digital format;

said encoder extracting non-image feature data from said image stream and generating a reduced bandwidth non-image feature stream therefrom, said non-image feature data including parameters related to attributes of areas in said image stream;

b) a remote high level image processing component comprising a remote image processing server;

c) a data network with which said low level feature extraction component communicates with said remote image processing server, each of said plurality of image acquisition devices and associated encoders communicating with said data network through a corresponding data communication channel;

d) wherein said encoder transmits said reduced bandwidth non-image feature stream to said remote image processing server prior to detection of said event;

e) wherein said remote image processing server analyzes said reduced bandwidth non-image feature stream and thereby detects said events

associated with said image stream from each of said plurality of image acquisition devices; and

f) wherein, responsive to detecting said events, said remote image processing server causes at least a portion of said image stream associated with said events to be transmitted to said remote image processing server.

47. (Previously Amended) The system of claim 46 wherein said encoder comprises a composite encoder which incorporates said processor, and further comprises circuitry for compressing said image stream, said composite encoder having a first operating mode during which said composite encoder transmits said reduced bandwidth non-image feature stream to said remote image processing server, and a second operating mode during which said composite encoder transmits to said remote image processing server, in addition to said reduced bandwidth non-image feature stream, at least a portion of said image stream in a desired compression level, according to commands sent from said remote image processing server, said remote image processing server controlling said composite encoder to operate in said second operating mode responsive to detecting said events.

48. (Canceled)

49. (Previously Amended) The system of claim 47 further comprising an operator display for receiving from said remote image processing server said image stream in which said event is detected.

50. (Previously Amended) The system of claim 46 wherein said features are encoded in said reduced bandwidth non-image feature stream only when at least one of a number and type of said features exceed a predetermined threshold, wherein said threshold is applied to said image acquisition device to control when

said encoder generates and transmits said feature stream, and said number and type of features exceeding said threshold are indicative of activity to be further analyzed by said remote image processing server in order to detect said event.

51 (Previously Amended) The method of claim 50 wherein said reduced bandwidth non-image feature stream is transmitted to said remote image processing server only when said number and type of features exceed said predetermined threshold.

52. (Previously Amended) The system of claim 50 wherein said features further comprise motion features, and said motion features are encoded in said reduced bandwidth non-image feature stream only when said motion features exceed said predetermined threshold.

53. (Previously Presented) The system of claim 50 wherein said predetermined threshold is established by said remote image processing server.

54. (Previously Amended) The system of claim 47 further comprising a network video recorder associated with each of said plurality of image acquisition devices for recording said image stream when said composite encoder operates in said second operating mode.

55. (Previously Presented) The system of claim 47 wherein said remote image processing server dynamically allocates additional image processing resources to data communication channels receiving said image stream.

56. (Cancelled)

57. (Previously Amended) The system of claim 49 wherein said remote image processing server further comprises a programmable processor for

generating and displaying on said operator display a graphical polygon that encompasses an object of interest within at least one of a frame of said at least a portion of an image and an area of interest in said at least a portion of an image.

58. (Previously Presented) The system of claim 57 wherein said remote image processing server generates and displays on said operator display a graphical trace indicating a history of movement of said object of interest.

59. (Previously Amended) The system of claim 46 wherein said image stream is selected from a group of images comprising video streams, still images, computer generated images, pre-recorded digital video data and pre-recorded analog video data.

60. (Previously Amended) The system of claim 46 wherein said non-image features comprise at least one of:

- a motion feature;
- a color feature;
- edge data; and
- frequency related information.

61. (Previously Amended) The system of claim 46 wherein said remote image processing server performs at least one of:

- License Plate Recognition (LPR);
- Facial Recognition (FR);
- detection of traffic rules violations;
- behavior recognition;
- fire detection;
- traffic flow detection; and

smoke detection;

using said reduced bandwidth non-image feature stream.